

C.) REMARKS

This Response is filed in response to the Office Action dated August 9, 2007.

Upon entry of this Response, claims 1, 2, 15 and 16 will be pending in the Application.

In the outstanding Office Action, the Examiner withdrew from consideration claims 3-14 and 17-28; rejected claims 2 and 16 under 35 U.S.C. 112, second paragraph, as being indefinite; and rejected claims 1, 2, 15 and 16 under 102(b) as being anticipated by Crane (U.S. Patent No. 972,163).

Rejection under 35 U.S.C. 112

The Examiner rejected claims 2 and 16 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter Applicant regards as the invention. Specifically, the Examiner stated:

Claims 2 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. There is no reference frame for "eccentric". Relative to what structure is the mechanism eccentric?

Applicant respectfully traverses the rejection of claims 2 and 16 under 35 U.S.C. 112, second paragraph. Applicant submits that the term "eccentric mechanism" is fully supported in the Specification and the Figures. Specifically, Applicant refers the Examiner to paragraphs [0015] – [0019] and Figure 1 where the mechanism is shown as eccentric to the axis of rotation. The term "eccentric mechanism" is a mechanical term known by one of ordinary skill in the art and is used within its ordinary meaning in the Specification and Figures.

Therefore, in view of the above, Applicant submits that claims 2 and 16 are fully supported and understood by the specification as filed, are not indefinite, and comply with the provisions of 35 U.S.C. 112, second paragraph, and are therefore allowable.

Rejection under 35 U.S.C. 102

The Examiner rejected claims 1, 2, 15 and 16 under 35 U.S.C. 102(b) as being anticipated by Crane (U.S. Patent No. 972,163), hereinafter referred to as "Crane."

Specifically, the Examiner stated that

Claims 1, 2, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Crane (US 972,163). Crane discloses a linear motor (steam end) having an element 8 which moves axially. The air end is formed by a piston and cylinder. The piston has a piston rod 7. An eccentric mechanism (cranks 3, 4, and links 5, 6) connects the element 8 to the piston rod 7. The mechanism acts as a motion stop for the linear motor.

Applicant respectfully traverses the rejection of claims 1, 2, 15 and 16 under 35 U.S.C. 102(b).

Crane, as understood, is directed to air compressors, and more specifically, directed to a system designed to overcome difficulties experienced in overcoming dead centers in the operation of air compressors. At the same time, the system is designed to obviate the necessity of depending upon the momentum of a flywheel to carry the crankshaft over the dead centers. Two cranks are connected at a specific angle and attached to piston rods to prevent having to manually move the compressor over dead centers if operation is discontinued while air is under compression. The two cranks must be positioned at a predetermined angle of 87 degrees, or slightly less than a right angle for accurate operation of the system.

In contrast, independent claim 1, as amended, recites a reciprocating compressor comprising: a linear motor, the linear motor comprising an element configured and disposed to move axially; at least one piston and cylinder arrangement, the piston and cylinder arrangement comprising a cylinder, a piston configured and disposed to travel in the cylinder and a piston rod connected to the piston; and a mechanism operatively connecting the element of the linear motor to the piston rod to move the piston in the cylinder upon operation of the linear motor, the mechanism having a plurality of mechanical configurations to operate as a motion stop for the linear motor thereby limiting overtravel and undertravel of the piston in the cylinder.

Independent claim 15 recites a mechanism to connect a moving element of a linear motor to a piston rod of a piston-cylinder arrangement, the mechanism comprising a plurality of mechanical configurations to operate as a motion stop for the linear motor thereby limiting overtravel and undertravel of the piston in the cylinder.

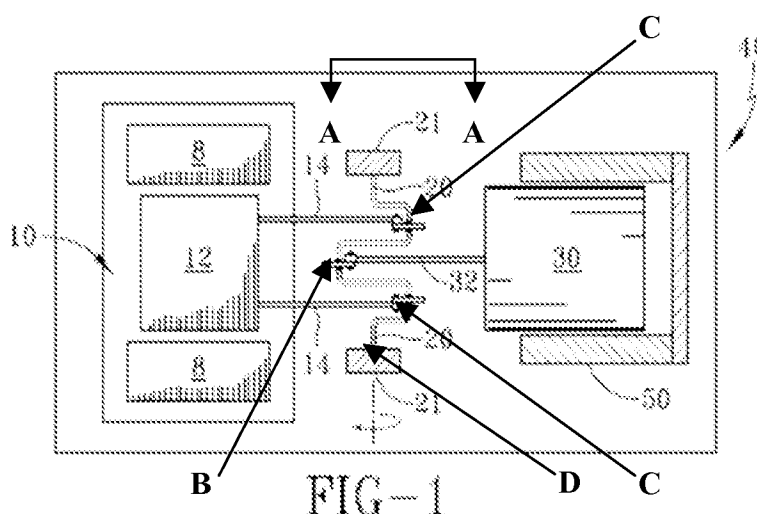
The examiner is reminded that “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.’ *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).” See Manual of Patent Examining Procedure, 8th Edition (MPEP), Section 2131.

In addition, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.’ *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).” See MPEP, Section 2131.

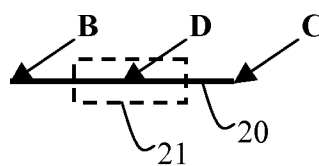
Several of the features recited by Applicant in independent claims 1 and 15 are not taught or suggested by Crane. First, Crane does not teach or suggest a linear motor as recited by Applicant in independent claim 1. The reciprocating operating means in Crane is not a linear motor as understood by one skilled in the art. In Crane, the reciprocal operating means would not be considered by one skilled in the art to be a linear motor because Crane teaches a fly wheel as being the primary momentum of carrying the crank shaft over the dead centers. One of ordinary skill in the art would not associate a flywheel for carrying the momentum of cranks as being a linear motor.

However, even if Crane was a linear motor as the Examiner states, Crane teaches that the two cranks must be set relatively to each other at a degree slightly less than a right angle. More specifically, Crane suggests that the cranks must be set on a shaft at a relative angle of approximately 87 degrees. In contrast, the eccentric mechanism in the present invention is a single unitary piece that is eccentric about an axis. Further, the eccentric mechanism of the present invention has a plurality of configurations and does not have to be arranged at a certain angle to any other mechanism or eccentric mechanism to provide a limit for undertravel and overtravel of the pistons (See e.g. Para. [0017], Claim 1). The rotation of the eccentric mechanism about the axis provides the limits without being disposed at a specific angle to the pistons or other mechanism or eccentric mechanism. There is no limitation on the angle of the eccentric mechanism of the present invention. The configuration of the eccentric mechanism 20 allows for any arrangement of angles to be used and still provides a limit of undertravel and overtravel of the pistons in the cylinders. Further, portions of the eccentric mechanism 20 may

be set at various angles compared to the remaining portion of the eccentric mechanism and still limit the undertravel and overtravel of the pistons. For example, referring to Figure 1 of the present invention shown below, the portion of the eccentric mechanism 20 that connects with the piston rod 32 of the piston 30 may be set at any degree difference from the portion of the mechanism 20 that connects with the piston rods 14 of piston 12. Please note that view A-A and positions B, C and D are provided for explanatory purposes in this Response and were not provided in Figure 1 as filed.



For further explanation, please refer below to Figure A, taken from prospective view A-A from Figure 1 above:



VIEW A-A

As disposed in Figure 1, the eccentric mechanism 20, has an exemplary configuration where the angle between positions B and C as segments extending from the centerline or rotation axis D is set to 180 degrees. The pistons 12, 30 are disposed in the same plane.

Now, refer to Figure B below, taken from prospective view A-A from Figure 1, showing an exemplary configuration of the eccentric mechanism, where the pistons 12, 30 are disposed in different planes.

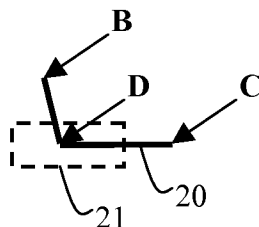


FIG - B
VIEW A-A

The eccentric mechanism 20, has a configuration where the angle between positions B and C as segments extending from the centerline or rotation axis D is slightly greater than 90 degrees. Piston 12 is disposed in a higher plane than the plane of piston 30. The angle slightly greater than 90 degrees as shown in Figure B is merely exemplary, as any angle, greater or less than 180, may be used for the eccentric mechanism 20 of the present invention. The other mechanisms also have a plurality of mechanical configurations. For example, in Figure 2, the linear gear 22 may be configured as a flattened worm gear so the linear motor may be moved with respect to pistons 30.

Thus, since Crane does not teach or suggest all of the limitations recited in independent claims 1 and 15, Applicant respectfully submits that Crane does not anticipate Applicant's invention as recited in independent claims 1 and 15. Therefore, for the reasons given above, independent claims 1 and 15 are believed to be distinguishable from Crane and therefore are not anticipated nor rendered obvious by Crane.

Dependent claims 2 and 16 are believed to be allowable as depending from what are believed to be allowable independent claims 1 and 15 for the reasons given above. In addition, claims 2 and 6 recite further limitations that distinguish over the applied art, such as the connecting mechanism is an eccentric. In conclusion, it is respectfully submitted that claims 1, 2, 15 and 16 are not anticipated nor rendered obvious by Crane and are therefore allowable.

CONCLUSION

In view of the above, Applicant respectfully requests reconsideration of the Application and withdrawal of the outstanding objections and rejections. As a result of the amendments and remarks presented herein, Applicant respectfully submits that claims 1, 2, 15 and 16 are not anticipated by nor rendered obvious by Crane and thus, are in condition for allowance. The amendments to independent claims 1 and 15 are fully supported by the specification as filed, specifically paragraph [0017] on page 5, lines 5-7, which states in part: "the particular configuration of the connecting mechanism 20." Therefore, no new matter has been submitted in the amendments. As the claims are not anticipated by nor rendered obvious in view of the applied art, Applicant requests allowance of claims 1, 2, 15 and 16 in a timely manner. If the Examiner believes that prosecution of this Application could be expedited by a telephone conference, the Examiner is encouraged to contact the Applicant.

The Commissioner is hereby authorized to charge any additional fees and credit any overpayments to Deposit Account No. 50-1059.

Respectfully submitted,
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